

What is claimed is:

1. An image forming apparatus comprising:

reading means for reading images recorded on

5 originals;

image forming means for forming images on blank  
sheets based on the read images;

stacking means for stacking a plurality of insert  
sheets which are fed in a manner bypassing image  
10 formation by said image forming means and inserted  
between said sheets having images formed thereon by  
said image forming means;

15 inserter means for reading out the stacked insert  
sheets and inserting same between the sheets having  
images formed thereon;

designating means for designating at least one  
position in said sheets having images formed thereon  
for insertion of at least one of the insert sheets by  
said inserter means;

20 detecting means for detecting an insert sheet to  
be inserted first when a plurality of positions have  
been designated by said designating means; and

discharging means operable when said detecting  
means detects that the insert sheet read out by said  
25 inserter means is not the insert sheet to be inserted  
first, for discharging insert sheets from said stacking  
means until the insert sheet to be inserted first is

detected.

2. An image forming apparatus according to claim 1, wherein said stacking means comprises a plurality of trays for stacking said plurality of insert sheets in a divided manner, the image forming apparatus further comprising selecting means capable of selecting between two types of stacking modes consisting of a first stacking mode in which a same type of insert sheets are stacked on each of said plurality of trays and a second stacking mode in which plural types of insert sheets are stacked in order in which they are inserted on each of said plurality of trays, and wherein said discharging means discharges insert sheets from said stacking means when said second stacking mode is selected by said selecting means.

3. An image forming apparatus according to claim 1, further comprising post-processing means for stacking said sheets having images formed thereon by said image forming means in a fashion mixed with insert sheets inserted by said inserter means, and for carrying out post-processing on the mixedly stacked sheets.

4. An image forming apparatus according to claim 3, wherein said discharging means discharges said insert sheets to a location other than said post-processing means.

5. An image forming apparatus according to claim

1, comprising a conveyance path for insert sheets, and wherein said detecting means is provided on said conveyance path for insert sheets.

6. An image forming apparatus comprising:

5 reading means for reading images recorded on originals;

image forming means for forming images on blank sheets based on the read images;

10 stacking means for stacking a plurality of insert sheets which are fed in a manner bypassing image formation by said image forming means and inserted between the sheets having images formed thereon by said image forming means;

15 inserter means for reading out the stacked insert sheets and inserting same between said sheets having images formed thereon;

20 designating means for designating at least one position in said sheets having images formed thereon for insertion of at least one of the insert sheets by said inserter means;

detecting means for detecting an insert sheet to be inserted first when a plurality of positions have been designated by said designating means;

25 interrupting means for interrupting a sheet inserting operation of said inserter means when at least one of the insert sheets has jammed while being inserted by said inserter means; and

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discharging means operable when said detecting means detects that the insert sheet read out by said inserter means is not the insert sheet to be inserted first after the apparatus has recovered from the interruption by removing the at least one jammed insert sheet, for discharging insert sheets from said stacking means until the insert sheet to be inserted first is detected, and for further discharging insert sheets from said stacking means up to an insert sheet immediately preceding a same type of sheet as the at least one jammed insert sheet.

7. An image forming apparatus according to claim 6, for stacking said plurality of insert sheets in a divided manner, the image forming apparatus further comprising selecting means capable of selecting between two types of stacking modes consisting of a first stacking mode in which a same type of insert sheets are stacked on each of said plurality of trays and a second stacking mode in which plural types of insert sheets are stacked in order in which they are inserted on each of said plurality of trays, and wherein said discharging means discharges insert sheets from said stacking means when said second stacking mode is selected by said selecting means..

8. An image forming apparatus according to claim 6, further comprising post-processing means for stacking said sheets having images formed thereon by

said image forming means in a fashion mixed with insert sheets inserted by said inserter means, and for carrying out post-processing on the mixedly stacked sheets.

5           9. An image forming apparatus according to claim 8, wherein said discharging means discharges said insert sheets to a location other than said post-processing means.

10           10. An image forming apparatus according to claim 6, comprising a conveyance path for insert sheets, and wherein said detecting means is provided on said conveyance path for insert sheets.

15           11. An image forming apparatus comprising:  
reading means for reading images recorded on  
originals;

image forming means for forming images on blank sheets based on the read images;

20           stacking means for stacking a plurality of insert sheets which are fed in a manner bypassing image formation by said image forming means and inserted between the sheets having images formed thereon by said image forming means;

25           inserter means for reading out the stacked insert sheets and inserting same between said sheets having images formed thereon;

mixed stacking means for stacking in a mixed fashion the sheets having images formed thereon by said

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image forming means and insert sheets to be inserted by said inserter means between the sheets having images formed thereon;

insert sheet discharging detecting means for  
5 detecting that said insert sheets have been discharged to said mixed stacking means; and

sheet feeding control means responsive to  
detection of discharging of said insert sheets by said  
insert sheet discharging detecting means, for  
10 controlling such that feeding of said blank sheets to said image forming means be started.

12. An image forming apparatus comprising:  
reading means for reading images recorded on  
originals;  
15 image forming means for forming images on blank sheets based on the read images;

stacking means for stacking a plurality of insert  
sheets which are fed in a manner bypassing image  
formation by said image forming means and inserted  
20 between the sheets having images formed thereon by said image forming means;

inserter means for reading out the stacked insert  
sheets and inserting same between said sheets having  
images formed thereon;

25 mixed stacking means for stacking in a mixed fashion the sheets having images formed thereon by said image forming means and insert sheets to be inserted by

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said inserter means between the sheets having images formed thereon;

image formed sheet discharging detecting means for detecting that said sheets having image formed thereon have been discharged to the mixed stacking means; and

reading control means responsive to detection of discharging of said insert sheets by said image formed sheet discharging detecting means, for controlling such that reading of said insert sheets by said inserter means be started.

13. An image forming apparatus comprising:

reading means for reading images recorded on originals;

image forming means for forming images on blank sheets based on the read images;

stacking means for stacking a plurality of insert sheets which are fed in a manner bypassing image formation by said image forming means and inserted between the sheets having images formed thereon by said image forming means;

inserter means for reading out the stacked insert sheets and inserting same between said sheets having images formed thereon;

mixed stacking means for stacking in a mixed fashion the sheets having images formed thereon by said image forming means and insert sheets to be inserted by said inserter means between the sheets having images

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formed thereon;

insert sheet discharging detecting means for detecting that said insert sheets have been discharged to said mixed stacking means;

5 sheet feeding control means responsive to detection of discharging of said insert sheets by said insert sheet discharging detecting means, for controlling such that feeding of said blank sheets to said image forming means be started;

10 image formed sheet discharging detecting means for detecting that said sheets having image formed thereon have been discharged to the mixed stacking means; and

reading control means responsive to detection of discharging of said insert sheets by said image formed sheet discharging detecting means, for controlling such  
15 that reading of said insert sheets by said inserter means be started.

14. A control method of controlling an image forming apparatus, comprising the steps of:

20 reading images recorded on originals by reading means;

forming images on blank sheets based on the read images by image forming means;

reading out insert sheets from a plurality of  
25 insert sheets stacked by stacking means, which are fed in a manner bypassing image formation by said image forming means and inserted between the sheets having

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images formed thereon by said image forming means and inserting the read out insert sheets between the sheets having images formed thereon by said image forming means, by inserter means;

5           designating at least one position in said sheets having images formed thereon for insertion of at least one of the insert sheets by said inserter means, by designating means;

10           detecting an insert sheet to be inserted first by detecting means when a plurality of positions have been designated by said designating means; and

15           discharging insert sheets from said stacking means until the insert sheet to be inserted first is detected, by discharging means when said detecting means detects that the insert sheet read out by said inserter means is not the insert sheet to be inserted first.

20           15. A control method according to claim 14, wherein said stacking means comprises a plurality of trays for stacking said plurality of insert sheets in a divided manner, the control method further comprising a step of selecting by selecting means between two types of stacking modes consisting of a first stacking mode in which a same type of insert sheets are stacked on  
25           each of said plurality of trays and a second stacking mode in which plural types of insert sheets are stacked in order in which they are inserted on each of said

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plurality of trays, and wherein said discharging step comprises discharging insert sheets from said stacking means when said second stacking mode is selected by said selecting means.

5           16. A control method according to claim 14, further comprising the steps of stacking said sheets having images formed thereon by said image forming means in a fashion mixed with insert sheets inserted by said inserter means, and carrying out post-processing  
10           on the mixedly stacked sheets, by post-processing means.

          17. A control method according to claim 16, wherein said discharging step comprises discharging said insert sheets to a location other than said post-  
15           processing means.

          18. A control method according to claim 14, wherein said detecting means is provided on a conveyance path for insert sheets.

          19. A control method of controlling an image  
20           forming apparatus, comprising the steps of:

          reading images recorded on originals by reading means;

          forming images on blank sheets based on the read images by image forming means;

25           reading out insert sheets from a plurality of insert sheets stacked by stacking means, which are fed in a manner bypassing image formation by said image

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forming means and inserted between the sheets having  
images formed thereon by said image forming means and  
inserting the read out insert sheets between the sheets  
having images formed thereon by said image forming  
5 means, by inserter means;

designating at least one position in said sheets  
having images formed thereon for insertion of at least  
one of the insert sheets by said inserter means, by  
designating means;

10 detecting an insert sheet to be inserted first by  
detecting means when a plurality of positions have been  
designated by said designating means;

interrupting a sheet inserting operation of said  
inserter means by interrupting means when at least one  
15 of the insert sheets has jammed while being inserted by  
said inserter means; and

discharging insert sheets from said stacking means  
until the insert sheet to be inserted first is  
detected, and further discharging insert sheets from  
20 said stacking means up to an insert sheet immediately  
preceding a same type of sheet as the at least one  
jammed insert sheet, by discharging means, when said  
detecting means detects that the insert sheet read out  
by said inserter means is not the insert sheet to be  
25 inserted first after the apparatus has recovered from  
the interruption by removing the at least one jammed  
insert sheet.

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20. A control method according to claim 19,  
wherein said stacking means comprises a plurality of  
trays for stacking said plurality of insert sheets in a  
divided manner, the control method further comprising a  
5 step of selecting by selecting means between two types  
of stacking modes consisting of a first stacking mode  
in which a same type of insert sheets are stacked on  
each of said plurality of trays and a second stacking  
mode in which plural types of insert sheets are stacked  
10 in order in which they are inserted on each of said  
plurality of trays, and wherein said discharging step  
comprises discharging insert sheets from said stacking  
means when said second stacking mode is selected by  
said selecting means.

21. A control method according to claim 19,  
further comprising the steps of stacking said sheets  
having images formed thereon by said image forming  
means in a fashion mixed with insert sheets inserted by  
said inserter means, and carrying out post-processing  
20 on the mixedly stacked sheets, by post-processing  
means.

22. A control method according to claim 21,  
wherein said discharging step comprises discharging  
said insert sheets to a location other than said post-  
25 processing means.

23. A control method according to claim 19,  
wherein said detecting means is provided on a

conveyance path for insert sheets.

24. A control method of controlling an image forming apparatus, comprising the steps of:

5 reading images recorded on originals by reading means;

forming images on blank sheets based on the read images by image forming means;

10 reading out insert sheets from a plurality of insert sheets stacked by stacking means, which are fed in a manner bypassing image formation by said image forming means and inserted between the sheets having images formed thereon by said image forming means and inserting the read out insert sheets between the sheets having images formed thereon by said image forming  
15 means, by inserter means;

detecting by insert sheet discharging detecting means that said insert sheets have been discharged to mixed stacking means that stacks in a mixed fashion the sheets having images formed thereon by said image  
20 forming means and insert sheets to be inserted by said inserter means between the sheets having images formed thereon; and

starting feeding of said blank sheets to said image forming means in response to detection of  
25 discharging of said insert sheets by said insert sheet discharging detecting means.

25. A control method of controlling an image

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reading images recorded on originals by reading

means;

forming images on blank sheets based on the read images by image forming means;

5 reading out insert sheets from a plurality of insert sheets stacked by stacking means, which are fed in a manner bypassing image formation by said image forming means and inserted between the sheets having images formed thereon by said image forming means and inserting the read out insert sheets between the sheets  
10 having images formed thereon by said image forming means, by inserter means;

detecting by insert sheet discharging detecting means that said insert sheets have been discharged to mixed stacking means that stacks in a mixed fashion the  
15 sheets having images formed thereon by said image forming means and insert sheets to be inserted by said inserter means between the sheets having images formed thereon; and

starting sheet feeding of said blank sheet to said  
20 image forming means when discharging of said insert sheet has been detected by said insert sheet discharging detecting means;

detecting with an image formed sheet discharging detecting means that said sheet having image formed  
25 thereon has been discharged to said mixed stacking means; and

starting feeding of said blank sheets to said

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image forming means in response to detection of discharging of said insert sheets by said insert sheet discharging detecting means;

5 detecting by image formed sheet discharging detecting means that said sheets having image formed thereon have been discharged to said mixed stacking means; and

10 starting reading of said insert sheets by said inserter means in response to detection of discharging of said insert sheets by said image formed sheet discharging detecting means.

15 27. A machine readable storage medium storing instructions of a program for causing a computer to execute an image processing method comprising the steps of:

reading images recorded on originals by reading means;

forming images on blank sheets based on the read images by image forming means;

20 reading out insert sheets from a plurality of insert sheets stacked by stacking means, which are fed in a manner bypassing image formation by said image forming means and inserted between the sheets having images formed thereon by said image forming means and  
25 inserting the read out insert sheets between the sheets having images formed thereon by said image forming means, by inserter means;



designating at least one position in said sheets having images formed thereon for insertion of at least one of the insert sheets by said inserter means, by designating means;

5 detecting an insert sheet to be inserted first by detecting means when a plurality of positions have been designated by said designating means; and

discharging insert sheets from said stacking means until the insert sheet to be inserted first is  
10 detected, by discharging means when said detecting means detects that the insert sheet read out by said inserter means is not the insert sheet to be inserted first.

28. A machine readable storage medium according  
15 to claim 27, wherein said stacking means comprises a plurality of trays for stacking said plurality of insert sheets in a divided manner, the control method further comprising a step of selecting by selecting means between two types of stacking modes consisting of  
20 a first stacking mode in which a same type of insert sheets are stacked on each of said plurality of trays and a second stacking mode in which plural types of insert sheets are stacked in order in which they are inserted on each of said plurality of trays, and  
25 wherein said discharging step comprises discharging insert sheets from said stacking means when said second stacking mode is selected by said selecting means.

29. A machine readable storage medium according to claim 27, wherein the control method further comprises the steps of stacking said sheets having images formed thereon by said image forming means in a fashion mixed with insert sheets inserted by said inserter means, and carrying out post-processing on the mixedly stacked sheets, by post-processing means.

30. A machine readable storage medium according to claim 29, wherein said discharging step comprises discharging said insert sheets to a location other than said post-processing means.

31. A machine readable storage medium according to claim 27, wherein said detecting means is provided on a conveyance path for insert sheets.

32. A machine readable storage medium storing instructions of a program for causing a computer to execute an image processing method comprising the steps of:

reading images recorded on originals by reading means;

forming images on blank sheets based on the read images by image forming means;

reading out insert sheets from a plurality of insert sheets stacked by stacking means, which are fed in a manner bypassing image formation by said image forming means and inserted between the sheets having images formed thereon by said image forming means and

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inserting the read out insert sheets between the sheets having images formed thereon by said image forming means, by inserter means;

designating at least one position in said sheets  
5 having images formed thereon for insertion of at least one of the insert sheets by said inserter means, by designating means;

detecting an insert sheet to be inserted first by detecting means when a plurality of positions have been  
10 designated by said designating means;

interrupting a sheet inserting operation of said inserter means by interrupting means when at least one of the insert sheets has jammed while being inserted by said inserter means; and

15 discharging insert sheets from said stacking means until the insert sheet to be inserted first is detected, and further discharging insert sheets from said stacking means up to an insert sheet immediately preceding a same type of sheet as the at least one  
20 jammed insert sheet, by discharging means, when said detecting means detects that the insert sheet read out by said inserter means is not the insert sheet to be inserted first after the apparatus has recovered from the interruption by removing the at least one jammed  
25 insert sheet.

33. A machine readable storage medium according to claim 32, wherein said stacking means comprises a

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plurality of trays for stacking said plurality of  
insert sheets in a divided manner, the control method  
further comprising a step of selecting by selecting  
means between two types of stacking modes consisting of  
5 a first stacking mode in which a same type of insert  
sheets are stacked on each of said plurality of trays  
and a second stacking mode in which plural types of  
insert sheets are stacked in order in which they are  
inserted on each of said plurality of trays, and  
10 wherein said discharging step comprises discharging  
insert sheets from said stacking means when said second  
stacking mode is selected by said selecting means.

34. A machine readable storage medium according  
to claim 32, wherein the control method further  
15 comprises the steps of stacking said sheets having  
images formed thereon by said image forming means in a  
fashion mixed with insert sheets inserted by said  
inserter means, and carrying out post-processing on the  
mixedly stacked sheets, by post-processing means.

20 35. A machine readable storage medium according  
to claim 34, wherein said discharging step comprises  
discharging said insert sheets to a location other than  
said post-processing means.

25 36. A machine readable storage medium according  
to claim 32, wherein said detecting means is provided  
on a conveyance path for insert sheets.

37. A machine readable storage medium storing

instructions of a program for causing a computer to execute an image processing method comprising the steps of:

5 reading images recorded on originals by reading means;

forming images on blank sheets based on the read images by image forming means;

10 reading out insert sheets from a plurality of insert sheets stacked by stacking means, which are fed in a manner bypassing image formation by said image forming means and inserted between the sheets having images formed thereon by said image forming means and inserting the read out insert sheets between the sheets having images formed thereon by said image forming  
15 means, by inserter means;

detecting by insert sheet discharging detecting means that said insert sheets have been discharged to mixed stacking means that stacks in a mixed fashion the sheets having images formed thereon by said image  
20 forming means and insert sheets to be inserted by said inserter means between the sheets having images formed thereon; and

starting feeding of said blank sheets to said image forming means in response to detection of  
25 discharging of said insert sheets by said insert sheet discharging detecting means.

38. A machine readable storage medium storing

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reading with reading means image recorded on an  
5 original;

forming images on blank sheets based on the read  
images by image forming means;

10 reading out insert sheets from a plurality of  
insert sheets stacked by stacking means, which are fed  
in a manner bypassing image formation by said image  
forming means and inserted between the sheets having  
images formed thereon by said image forming means and  
15 inserting the read out insert sheets between the sheets  
having images formed thereon by said image forming  
means, by inserter means;

detecting by insert sheet discharging detecting  
means that said insert sheets have been discharged to  
mixed stacking means that stacks in a mixed fashion the  
20 sheets having images formed thereon by said image  
forming means and insert sheets to be inserted by said  
inserter means between the sheets having images formed  
thereon; and

25           starting reading reading of said insert sheets by  
said inserter means in response to detection of  
discharging of said insert sheets by said image formed

sheet discharging detecting means.

39. A machine readable storage medium storing instructions of a program for causing a computer to execute an image processing method comprising the steps of:

reading images recorded on originals by reading means;

forming images on blank sheets based on the read images by image forming means;

reading out insert sheets from a plurality of insert sheets stacked by stacking means, which are fed in a manner bypassing image formation by said image forming means and inserted between the sheets having images formed thereon by said image forming means and inserting the read out insert sheets between the sheets having images formed thereon by said image forming means, by inserter means;

detecting by insert sheet discharging detecting means that said insert sheets have been discharged to mixed stacking means that stacks in a mixed fashion the sheets having images formed thereon by said image forming means and insert sheets to be inserted by said inserter means between the sheets having images formed thereon; and

starting sheet feeding of said blank sheet to said image forming means when discharging of said insert sheet has been detected by said insert sheet

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discharging detecting means;

detecting with an image formed sheet discharging  
detecting means that said sheet having image formed  
thereon has been discharged to said mixed stacking

5 means; and

starting feeding of said blank sheets to said  
image forming means in response to detection of  
discharging of said insert sheets by said insert sheet  
discharging detecting means;

10 detecting by image formed sheet discharging  
detecting means that said sheets having image formed  
thereon have been discharged to said mixed stacking  
means; and

15 starting reading of said insert sheets by said  
inserter means in response to detection of discharging  
of said insert sheets by said image formed sheet  
discharging detecting means.

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